F1A1-MWS Bachelor of Science in Mathematics with Statistics

**PROGRAMME DETAILS**
Programme Code: F1A1-MWS
Department: Mathematics
Main Award: BSCH - Bachelor of Science Honours
Full Award Title: Bachelor of Science in Mathematics with Statistics
Level: Undergraduate

**LOCATION OF STUDY**

<table>
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<tr>
<th>Location</th>
<th>Edinburgh</th>
<th>Scottish Borders</th>
<th>Orkney</th>
<th>Dubai</th>
<th>Malaysia</th>
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**ASSOCIATED AWARDS**

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<td>F1A1-MWS</td>
<td>BSCH</td>
<td>Bachelor of Science in Mathematics with Statistics</td>
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<td>F1A1-ZZZ</td>
<td>BSCO</td>
<td>Bachelor of Science in Mathematics with Statistics</td>
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</table>

**ACCREDITATION**

N/A

**LEARNING OUTCOMES – SUBJECT MASTERY**

Understanding, Knowledge and Cognitive Skills

On completion of the programme students should be able to:

- demonstrate an understanding across a broad range of mathematics and statistics
- demonstrate a detailed knowledge and understanding in certain specific areas of both mathematics and statistics
- demonstrate an understanding of the power of abstraction and of the notions of proof and logical reasoning
- demonstrate an appreciation of the usefulness of mathematics and statistics over a wide range of applications

**Scholarship, Enquiry and Research (Research Informed Learning)**

On completion of the programme students should be able to:

- demonstrate a good level of skill in calculation and in mathematical manipulation
- demonstrate the ability to present rigorous arguments
- model real-life situations in mathematical terms and analyse the resulting models
- demonstrate computational skills involving the use of a range of software packages

**LEARNING OUTCOMES – PERSONAL ABILITIES**

Industrial, Commercial and Professional Practice
On completion of the programme, students will have the knowledge and skills for the development, application and consequent analysis of mathematics and statistics and mathematical and statistical models as currently required in modern industrial sectors, including IT, finance, engineering, and general science and technology. They will be able to identify, analyse and solve problems, and discuss issues at a professional level; they will also be able to critically review existing practices and will be in a strong position to move on to a professional environment, with sound knowledge, confidence and awareness of the nature of that environment and the demands it will make.

### Autonomy, Accountability and Working With Others

On completion of the programme, students will be able to:

- plan and organise their own learning through self-management and time management
- demonstrate the ability to work with relatively little guidance or support, to undertake self-directed work and to meet deadlines
- communicate effectively with professionals from a wide and diverse range of areas
- interact effectively with professionals from a wide and diverse range of areas

### Communication, Numeracy & Information and Communications Technology

On completion of the programme, students will be numerate, able to make presentations on specialised topics and able to communicate well with peers and other colleagues. They will have extensive IT knowledge and skills and will be able to use them confidently. They will also have the necessary background to enable them to be ready, able to communicate on technical and general matters with peers and senior colleagues and solve problems by applying a range of concepts and principles in loosely defined contexts and showing effective judgement in the selection and application of tools and techniques.

### APPROACHES TO TEACHING AND LEARNING

The following teaching methods are used: lectures, tutorials, computing laboratory work, coursework, projects. Teaching on the programme is student-focused, with students encouraged to take responsibility for their own learning and development. In addition, students learn through structured group work in problems solving, collaborative student presentations, and independent study and technical project work. Resource-based and problem-based teaching styles are used to facilitate the motivational and assimilative phases of the learning process. The level and type of support available via VISION will vary between the courses as is appropriate for the subject matter. Approaches to learning and teaching are continually reviewed and developed with the aim of matching them to the abilities and experiences of the students.
The principal aims of the programme are to

- provide high-quality undergraduate education in a wide range of subjects in modern mathematics and statistics
- enable students to develop detailed knowledge and critical understanding of both theoretical and applied elements of mathematics and statistics
- provide students with training and practical experience of modelling, analysing and interpreting mathematical and real-world problems
- enable students to communicate and work effectively with peers and academic staff, demonstrating appropriate levels of autonomy, initiative, and responsibility
- provide students at the undergraduate level with the opportunity to plan and write a dissertation requiring detailed and critical understanding in an area of statistics
- equip students with the grounding in mathematics and statistics necessary to go onto to further study or straight into graduate jobs

ASSESSMENT POLICIES

The assessment policy for the programme incorporates a range of assessment types. Continuous assessment during some courses and summative assessment at the conclusion of courses both contribute to the overall assessment and are used to formally measure achievement in specified learning outcomes. Understanding, knowledge and subject-specific skills are assessed by coursework assignments and written examinations. Formative assessment is used to provide feedback and to inform student learning. Approaches to assessment are continually reviewed. Specific details about methods of assessment are provided in the appropriate course descriptors.

PROGRAMME STRUCTURE

Mandatory Courses

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<thead>
<tr>
<th>Edinburgh</th>
<th>SBC</th>
<th>Okney</th>
<th>Dubai</th>
<th>HWUM</th>
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<th>Semester</th>
<th>Cours e Code</th>
<th>CourseTitle</th>
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### Probability and Statistics A
15 8

### Multivariable Calculus and Real Analysis B
15 8

### Numerical Analysis A
15 8

### Pure Mathematics A
15 8

### Probability and Statistics B
15 8

### Abstract Algebra
15 9

### Statistical Models A
15 9

### Complex Analysis
15 9

### Ordinary Differential Equations
15 9

### Statistical Models B
15 9

### Statistics for Social Science
15 9

### Time Series
15 10

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### ELECTIVES (UG)

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<tr>
<td>Stage 3</td>
<td>Any SCQF Level 7,8 or 9 course from approved list</td>
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<td>N/A</td>
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<tr>
<td>Stage 5</td>
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### COMPOSITION AND STAGE NOTES (UG)

#### Stage 1
Students must study 6 mandatory courses plus 2 optional or elective courses.

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#### Stage 2
Students must study 7 mandatory courses plus 1 optional course.

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<td>Total</td>
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#### Stage 3
Honours degree students must study 5 mandatory courses, together with 3 optional courses and no electives. Ordinary degree students must study 5 mandatory courses, together with up to 3 optional courses and up to 2 approved elective courses. The choice of electives will be published in the student handbook.

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#### Stage 4

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#### Stage 5

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Reassessment Opportunities

1. A student who has been awarded a Grade E or a Grade F in a course may be re-assessed in that course.
2. A student shall be permitted only one re-assessment opportunity to be taken at the Resit diet of examination following the first assessment of the course.
3. A student shall not be re-assessed in any qualifying course taken in the final stage of a course of study.
4. The Progression Board may permit a student to be re-assessed in any qualifying course not taken in the final stage in order to gain credits for the course, provided that the mark or grade obtained in the first assessment of any such course is used in determining the classification of the degree to be awarded.

Progression Requirements

Part A. The minimum number of credits required to progress through each stage are as follows

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<tr>
<th>Stage</th>
<th>Credits</th>
<th>Courses</th>
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<td>Stage 1 to 2</td>
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<td>Stage 2 to 3</td>
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<td>Stage 3 to 4</td>
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<td>Stage 4 to 5</td>
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Part B. The minimum grade of D is required in the following courses

Stage 1

Progression through the programme for an Honours degree normally requires:

A minimum of Grade D in at least 6 courses including F17CA Calculus A, F17CB Calculus B, F17CC Algebra A, F17GA Problem Solving, F77SA Introduction to Statistical Science A and F77SB Introduction to Statistical Science B

Progression through the course for an Ordinary degree normally requires:

A minimum of Grade D in at least 5 courses including F17CA Calculus A, F17CB Calculus B, F17CC Algebra A, F77SA Introduction to Statistical Science A and F77SB Introduction to Statistical Science B

Stage 2

Progression through the programme for an Honours degree normally requires:

A minimum of Grade D in at least 6 courses including F18CD Multivariable Calculus and Real Analysis A, F18CE Multivariable Calculus and Real Analysis B, F18CF Linear Algebra, F78PA Probability and Statistics A and F78PB Probability and Statistics B

Progression through the course for an Ordinary degree normally requires:

Stage 3

Progression through the course for an Ordinary degree normally requires:
A minimum of Grade D in at least 5 courses including F18CD Multivariable Calculus and Real Analysis A, F18CE Multivariable Calculus and Real Analysis B, F18CF Linear Algebra, F78PA Probability and Statistics A and F78PB Probability and Statistics B

Stage 4

Progression through the programme for an Honours degree normally requires: An average mark of at least 40% on all the courses in this stage.

The Progression Board may permit a student to be re-assessed in any qualifying module not taken in the final stage in order to gain credits for the module, provided that the mark or grade obtained in the first assessment of any such module is used in determining the classification of the degree to be awarded.

**AWARDS, CREDITS AND LEVEL (UG)**

**Part A. Credit Requirements**

<table>
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<th>Overall Credits</th>
<th>Specific Requirements</th>
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<tr>
<td>Integrated Masters</td>
<td>600</td>
<td>600 SCQF credits including a minimum of 120 credit at Level 11</td>
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<tr>
<td>Honours Degree (inc.MA)</td>
<td>480</td>
<td>480 SCQF credits including a minimum of 180 credit at Level 9 and 10 of which at least 90 credits at Level 10</td>
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<tr>
<td>Ordinary or General Degree</td>
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<td>360 SCQF credits including a minimum of 60 credit at Level 9</td>
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<td>Diploma of Higher Education</td>
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<td>240 SCQF credits including a minimum of 90 credit at Level 8</td>
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<td>Certificate of Higher Education</td>
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<td>120 SCQF credits including a minimum of 90 credit at Level 7</td>
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**Part B. Mark/Grade Requirements**

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<th>Overall Mark</th>
<th>Overall Grade</th>
<th>Basis of Overall Mark/Grade</th>
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<td>Integrated Masters</td>
<td>&gt;=50%</td>
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<td>Credit Weighted Average &gt;=50% over all qualifying courses at Grades A-D</td>
</tr>
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<td>Honours Degree (inc.MA)</td>
<td>&gt;=40%</td>
<td>D</td>
<td>1st: Credit Weighted Average &gt;=70% Over all qualifying courses at grades A-D. 2.1: Credit Weighted Average &gt;=60% Over all qualifying courses at grades A-D. 2.2: Credit Weighted Average &gt;=50% Over all qualifying courses at grades A-D. 3rd: Credit Weighted Average &gt;=40% Over all qualifying courses at grades A-D.</td>
</tr>
<tr>
<td>Ordinary or General Degree</td>
<td>&gt;=40%</td>
<td>D</td>
<td>Minimum of grade D in all pre-requisite courses.</td>
</tr>
<tr>
<td>Diploma of Higher Education</td>
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<td>D</td>
<td>Minimum of grade D in all pre-requisite courses.</td>
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<tr>
<td>Certificate of Higher Education</td>
<td>&gt;=40%</td>
<td>D</td>
<td>Minimum of grade D in all pre-requisite courses.</td>
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**DURATION OF STUDY**

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<td>Integrated Masters</td>
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<tr>
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